FIG. 1

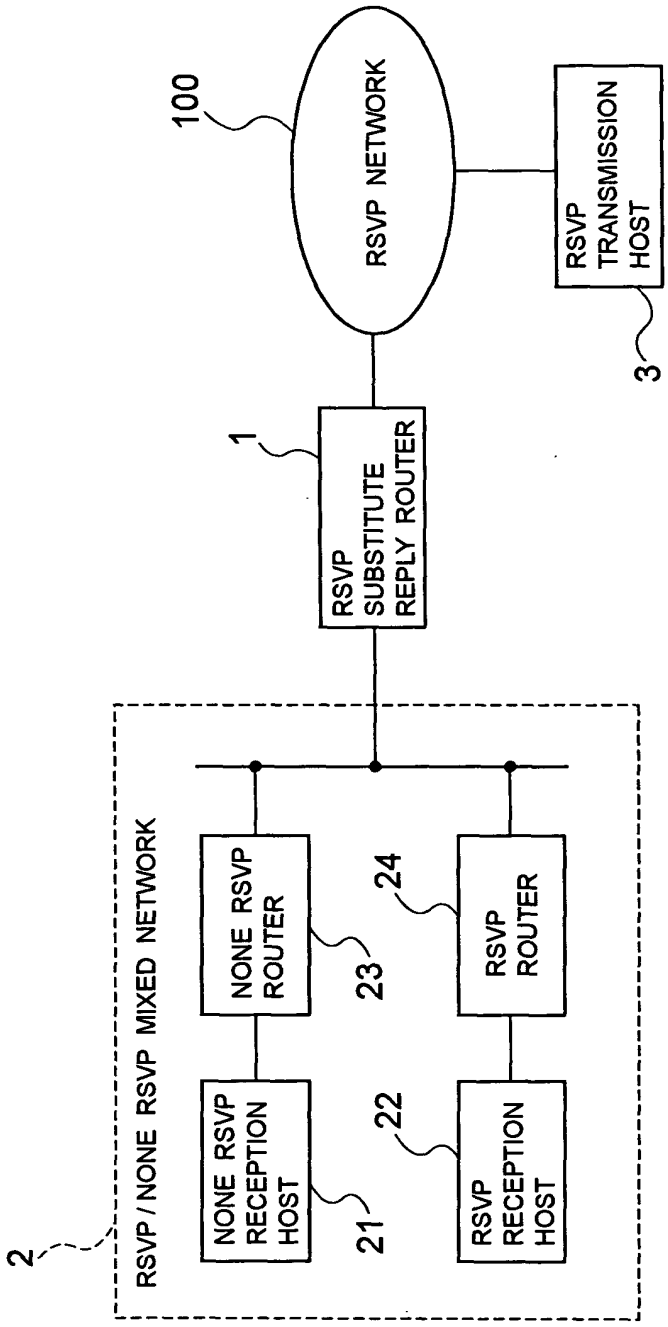

100
RSVP NETWORK
RSVP TRANSMISSION HOST
3
1
RSVP SUBSTITUTE REPLY ROUTER
2
RSVP / NONE RSVP MIXED NETWORK
NONE RSVP ROUTER
23
24
RSVP ROUTER
NONE RSVP RECEPTION HOST
21
22
RSVP RECEPTION HOST

FIG. 2

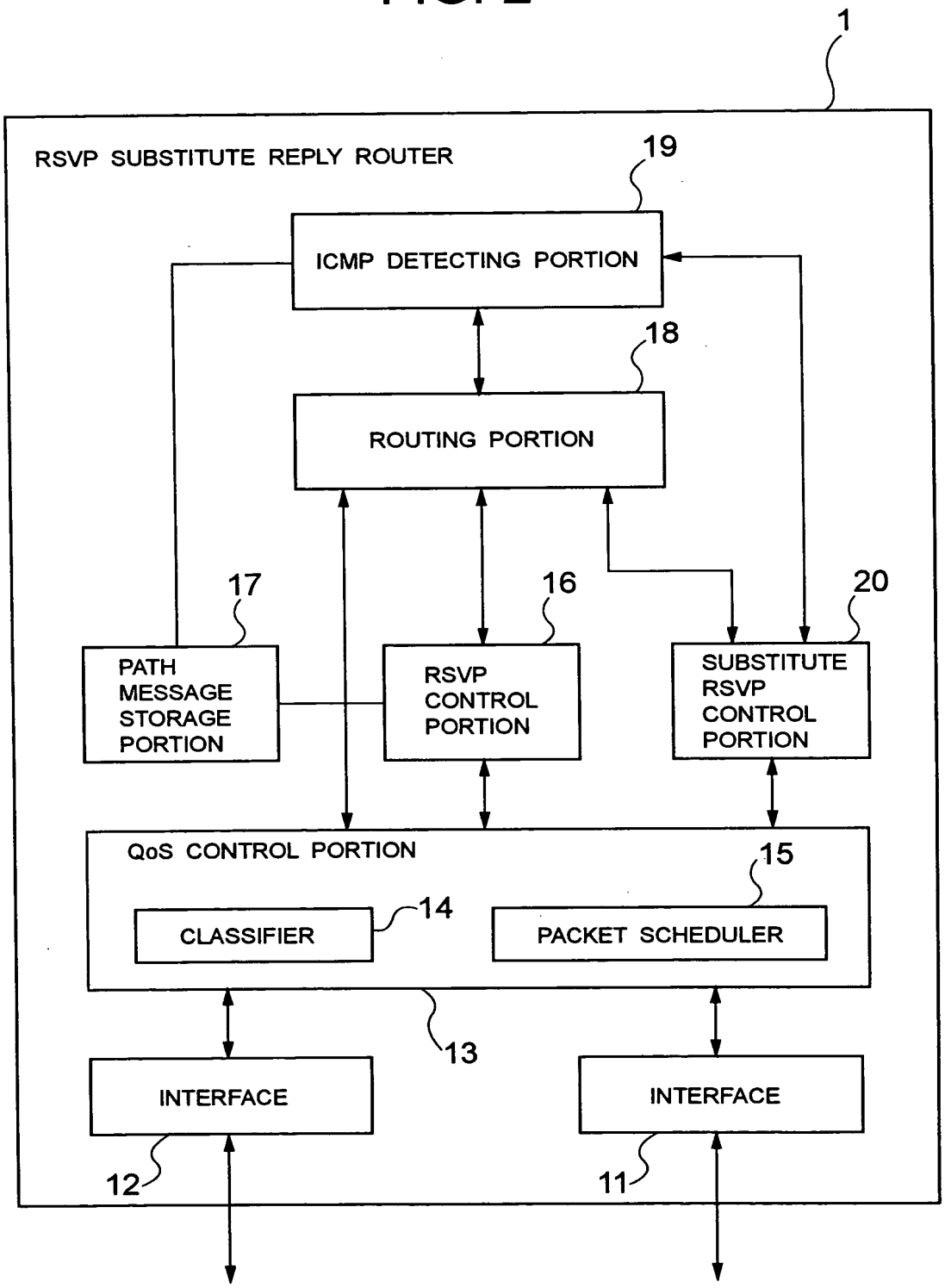

1
RSVP SUBSTITUTE REPLY ROUTER
19
ICMP DETECTING PORTION
18
ROUTING PORTION
17
16
20
PATH MESSAGE STORAGE PORTION
RSVP CONTROL PORTION
SUBSTITUTE RSVP CONTROL PORTION
QoS CONTROL PORTION
15
14
CLASSIFIER
PACKET SCHEDULER
13
INTERFACE
INTERFACE
12
11

FIG. 3

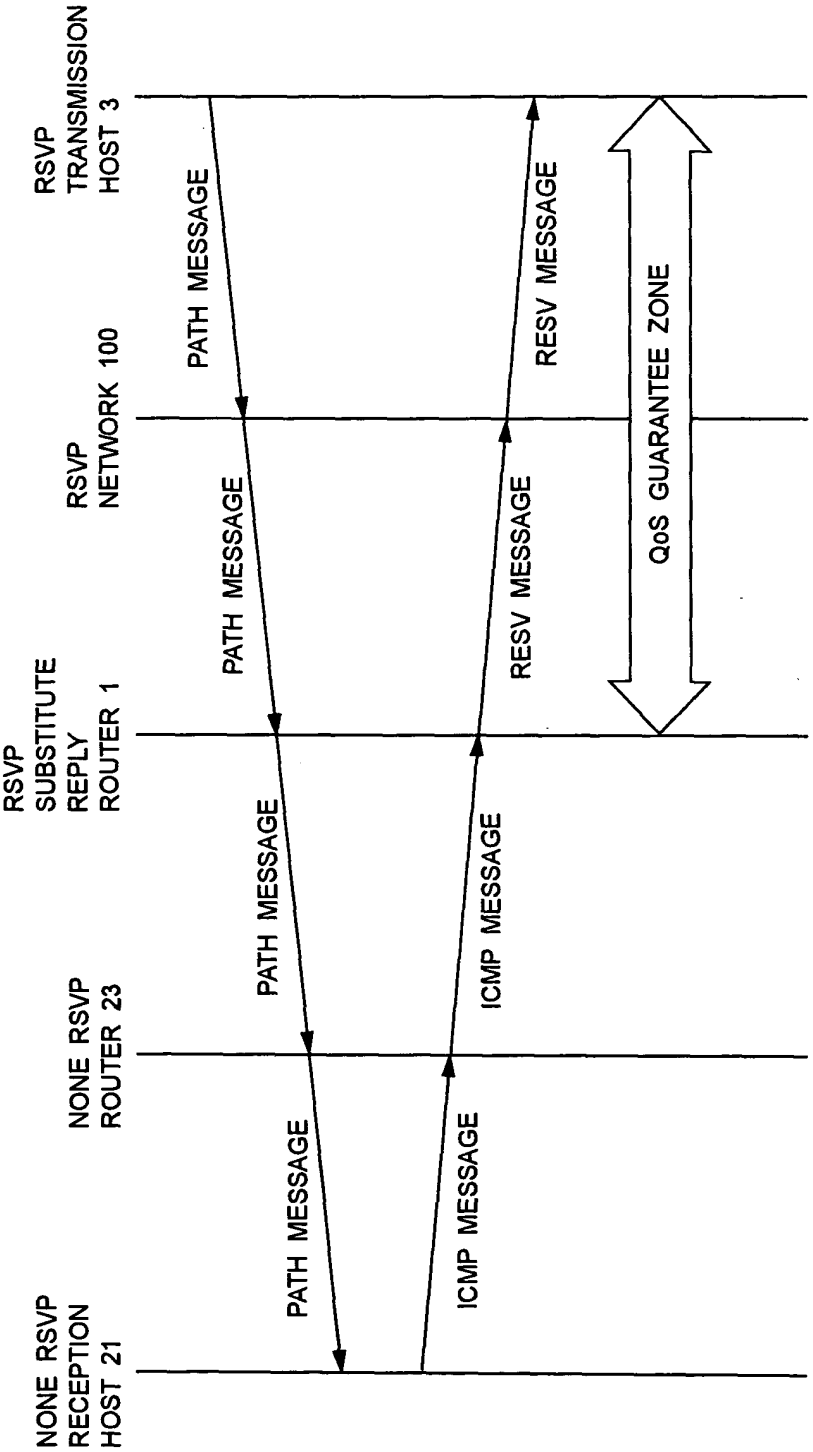

RSVP TRANSMISSION HOST 3
RSVP NETWORK 100
RSVP SUBSTITUTE REPLY ROUTER 1
NONE RSVP ROUTER 23
NONE RSVP RECEPTION HOST 21
PATH MESSAGE
PATH MESSAGE
PATH MESSAGE
PATH MESSAGE
RESV MESSAGE
RESV MESSAGE
ICMP MESSAGE
ICMP MESSAGE
QoS GUARANTEE ZONE

FIG. 4

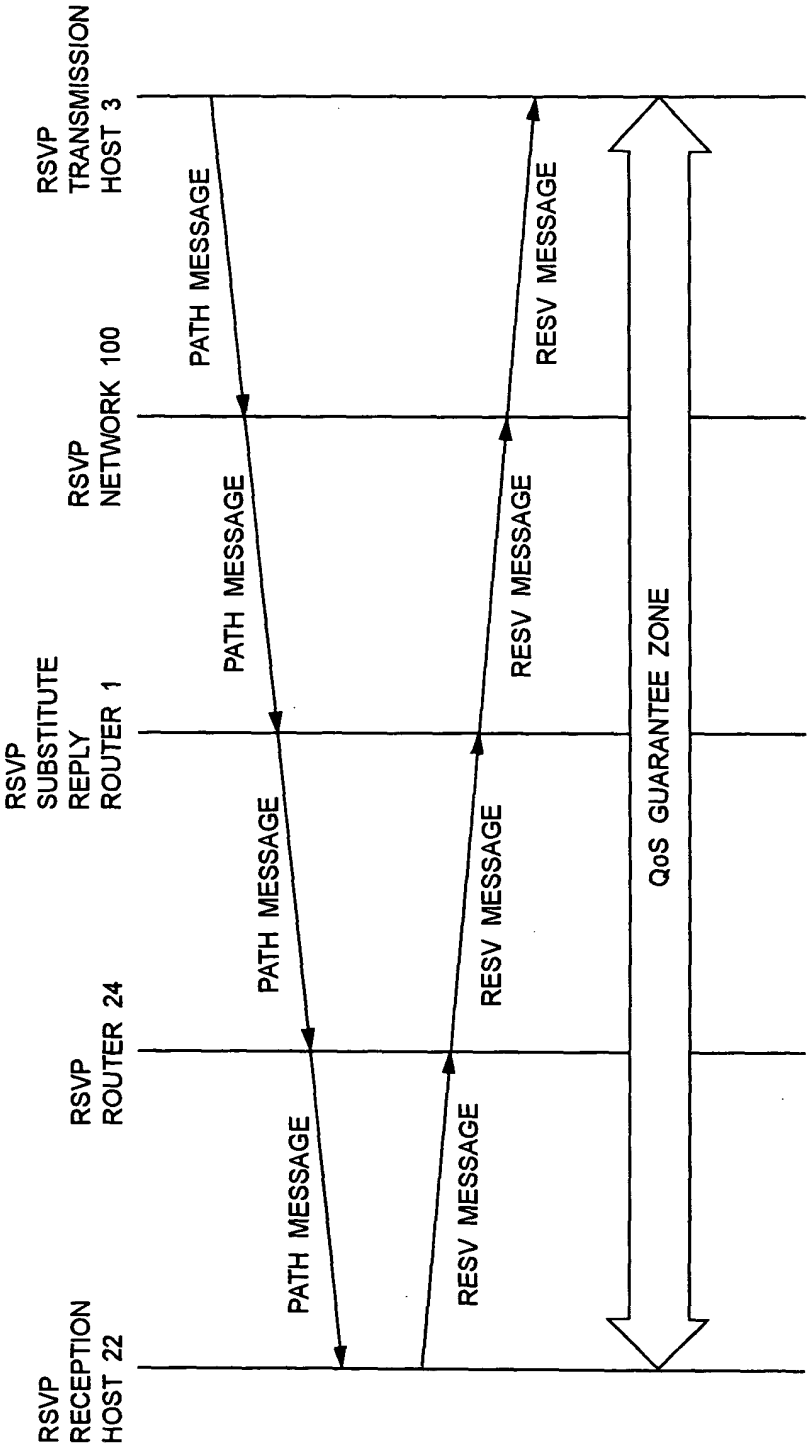

RSVP TRANSMISSION HOST 3
RSVP NETWORK 100
RSVP SUBSTITUTE REPLY ROUTER 1
RSVP ROUTER 24
RSVP RECEPTION HOST 22
PATH MESSAGE
PATH MESSAGE
PATH MESSAGE
PATH MESSAGE
RESV MESSAGE
RESV MESSAGE
RESV MESSAGE
RESV MESSAGE
QoS GUARANTEE ZONE

FIG. 5A

IP HEADER FORMAT

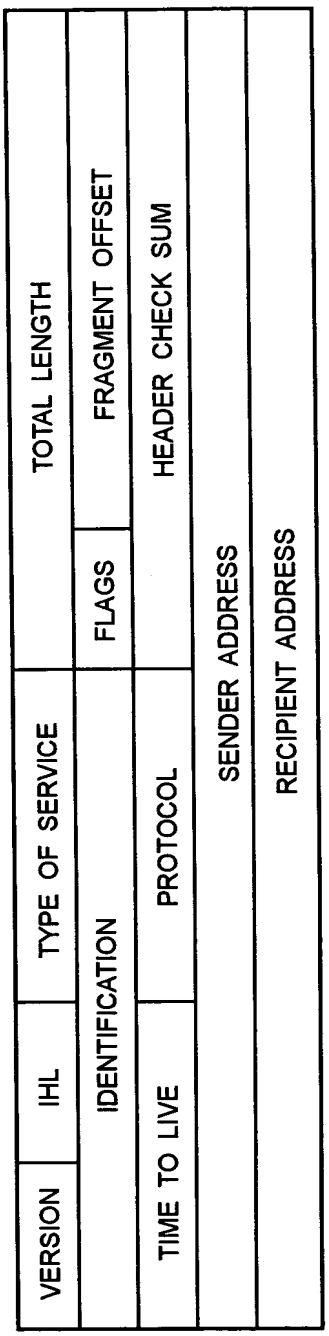


FIG. 5B

RSVP PROTOCOL FORMAT

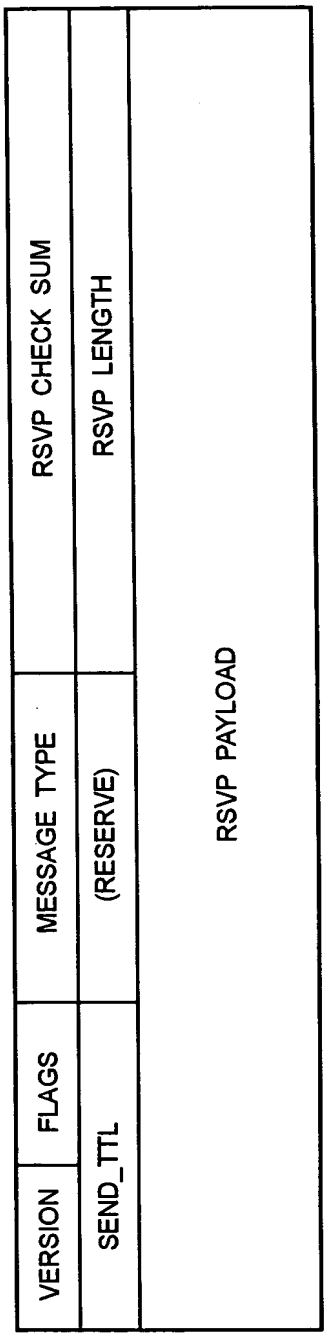


FIG. 6

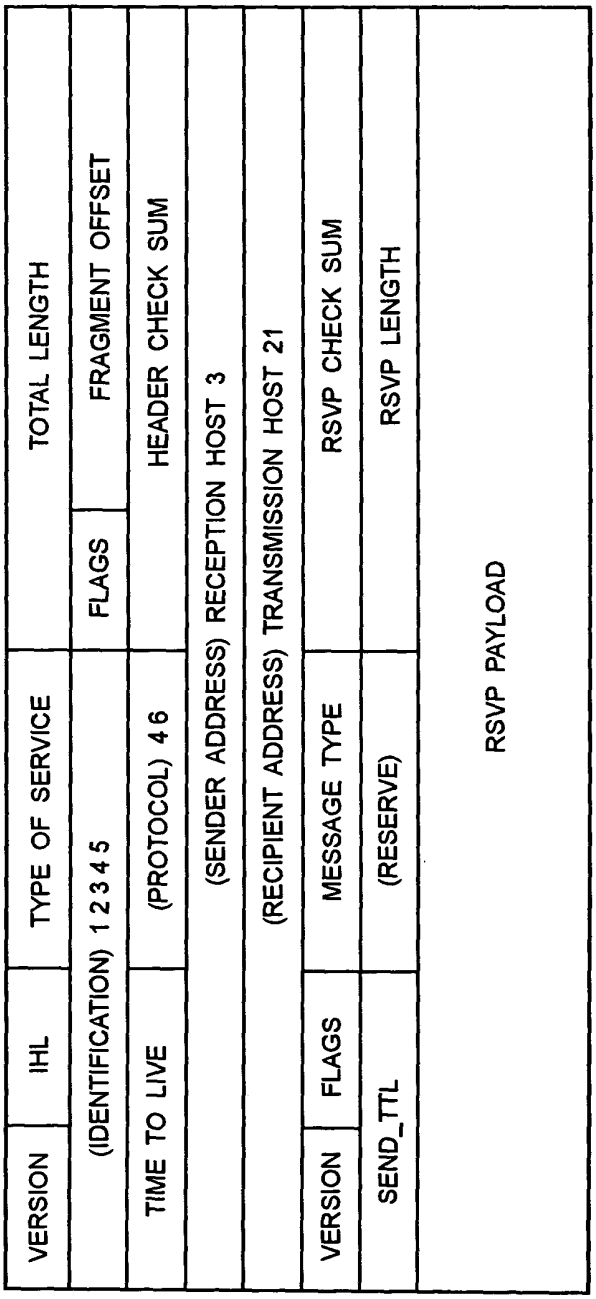

VERSION
IHL
TYPE OF SERVICE
TOTAL LENGTH
(IDENTIFICATION) 1 2 3 4 5
FLAGS
FRAGMENT OFFSET
TIME TO LIVE
(PROTOCOL) 4 6
HEADER CHECK SUM
(SENDER ADDRESS) RECEPTION HOST 3
(RECIPIENT ADDRESS) TRANSMISSION HOST 21
VERSION
FLAGS
MESSAGE TYPE
RSVP CHECK SUM
SEND_TTL
(RESERVE)
RSVP LENGTH
RSVP PAYLOAD

FIG. 7

PATH MESSAGE	SENDER ADDRESS	RECIPIENT ADDRESS	IDENTIFICATION
PATH MESSAGE	TRANSMISSION HOST 3	RECEPTION HOST 21	1 2 3 4 5

FIG. 8

TYPE (= 3)	CODE (= 2)	CHECK SUM
NOT USED		
CONTENT OF ORIGINAL IP HEADER		
8 BYTE ORIGINAL DATAGRAM		

FIG. 9

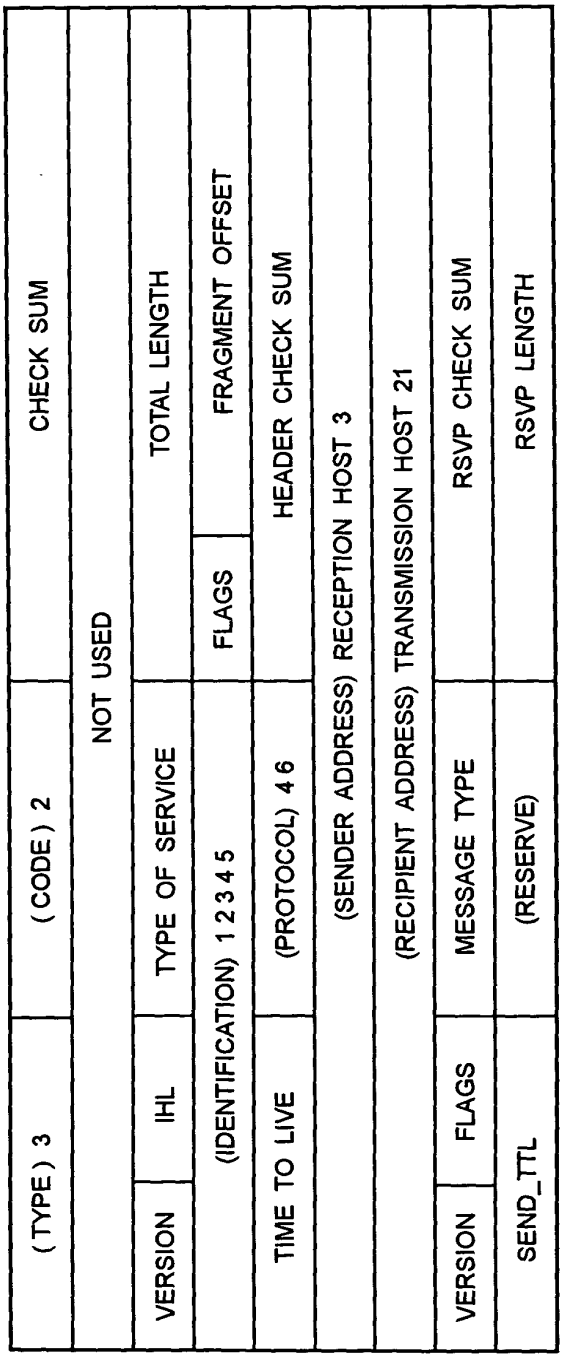

(TYPE) 3
(CODE) 2
CHECK SUM
NOT USED
VERSION
IHL
TYPE OF SERVICE
TOTAL LENGTH
(IDENTIFICATION) 1 2 3 4 5
FLAGS
FRAGMENT OFFSET
TIME TO LIVE
(PROTOCOL) 4 6
HEADER CHECK SUM
(SENDER ADDRESS) RECEPTION HOST 3
(RECIPIENT ADDRESS) TRANSMISSION HOST 21
VERSION
FLAGS
MESSAGE TYPE
RSVP CHECK SUM
SEND_TTL
(RESERVE)
RSVP LENGTH

FIG. 10

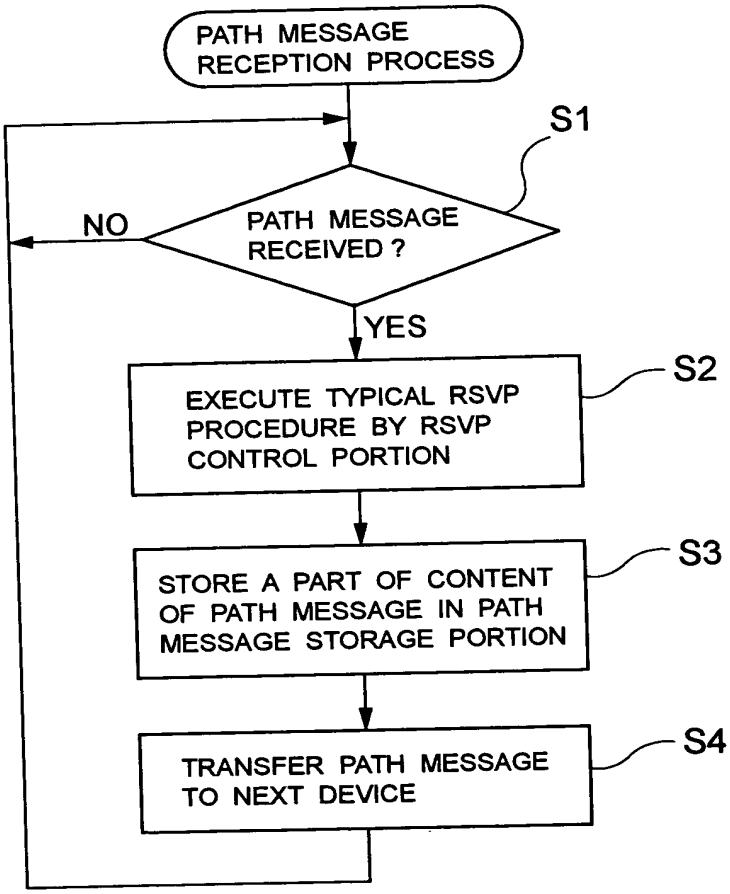

PATH MESSAGE RECEPTION PROCESS
S1
PATH MESSAGE RECEIVED ?
NO
YES
EXECUTE TYPICAL RSVP PROCEDURE BY RSVP CONTROL PORTION
S2
STORE A PART OF CONTENT OF PATH MESSAGE IN PATH MESSAGE STORAGE PORTION
S3
TRANSFER PATH MESSAGE TO NEXT DEVICE
S4

FIG. 11

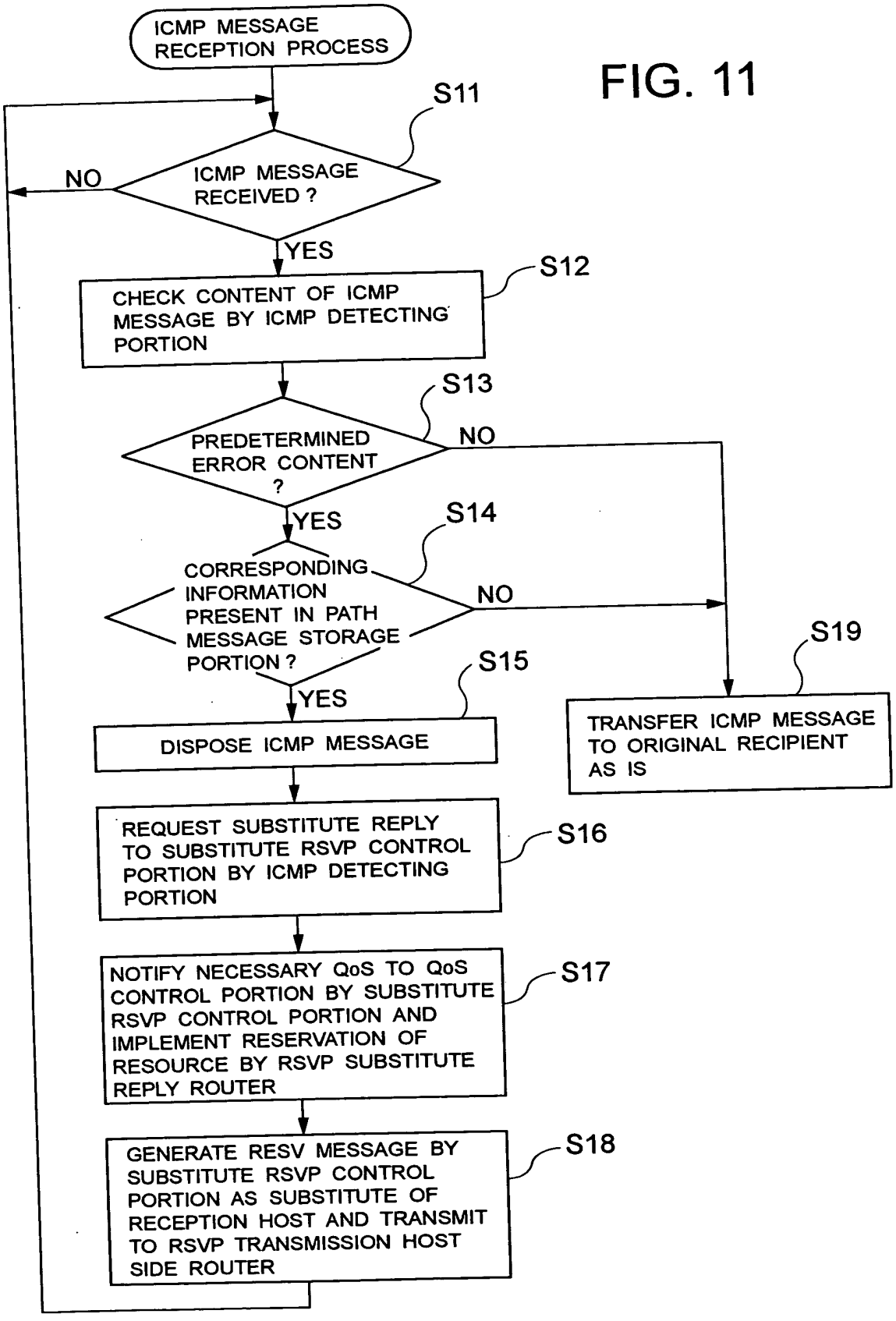

ICMP MESSAGE RECEPTION PROCESS
S11
ICMP MESSAGE RECEIVED ?
NO
YES
S12
CHECK CONTENT OF ICMP MESSAGE BY ICMP DETECTING PORTION
S13
PREDETERMINED ERROR CONTENT ?
NO
YES
S14
CORRESPONDING INFORMATION PRESENT IN PATH MESSAGE STORAGE PORTION ?
NO
YES
S15
DISPOSE ICMP MESSAGE
S16
REQUEST SUBSTITUTE REPLY TO SUBSTITUTE RSVP CONTROL PORTION BY ICMP DETECTING PORTION
S17
NOTIFY NECESSARY QoS TO QoS CONTROL PORTION BY SUBSTITUTE RSVP CONTROL PORTION AND IMPLEMENT RESERVATION OF RESOURCE BY RSVP SUBSTITUTE REPLY ROUTER
S18
GENERATE RESV MESSAGE BY SUBSTITUTE RSVP CONTROL PORTION AS SUBSTITUTE OF RECEPTION HOST AND TRANSMIT TO RSVP TRANSMISSION HOST SIDE ROUTER
S19
TRANSFER ICMP MESSAGE TO ORIGINAL RECIPIENT AS IS

FIG. 12

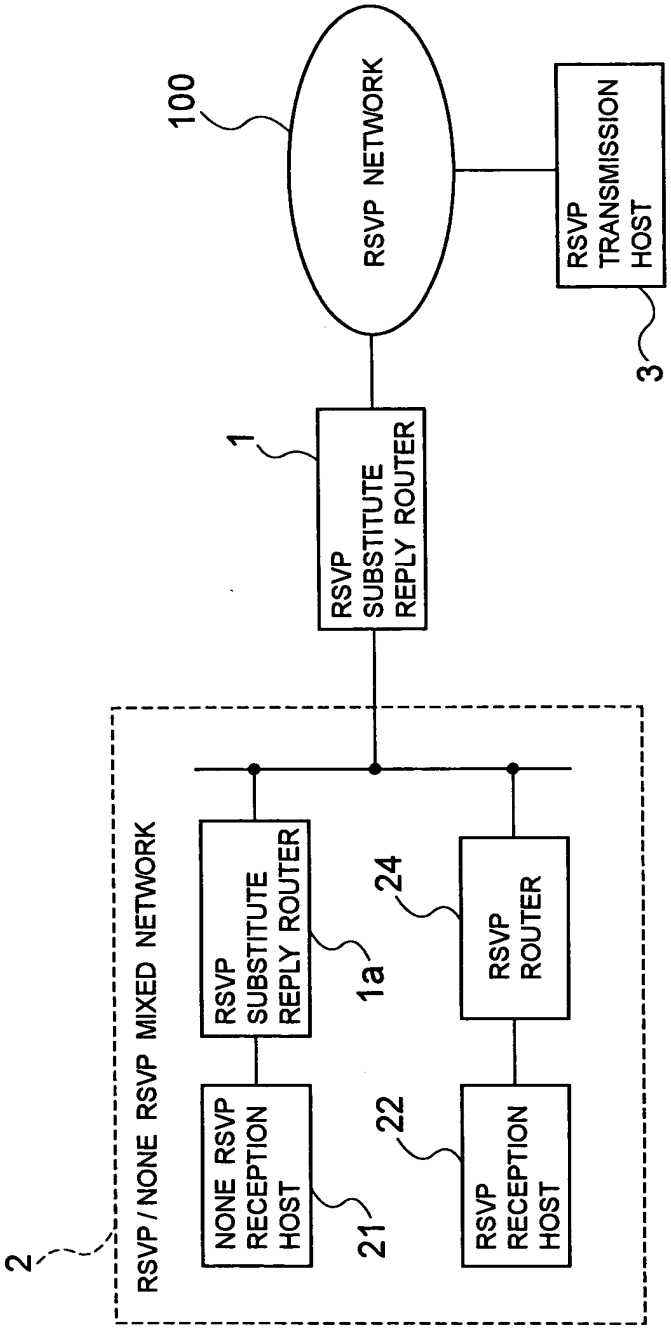

100
RSVP NETWORK
RSVP TRANSMISSION HOST
3
1
RSVP SUBSTITUTE REPLY ROUTER
RSVP / NONE RSVP MIXED NETWORK
RSVP SUBSTITUTE REPLY ROUTER
1a
24
RSVP ROUTER
NONE RSVP RECEPTION HOST
21
22
RSVP RECEPTION HOST
2

FIG. 13

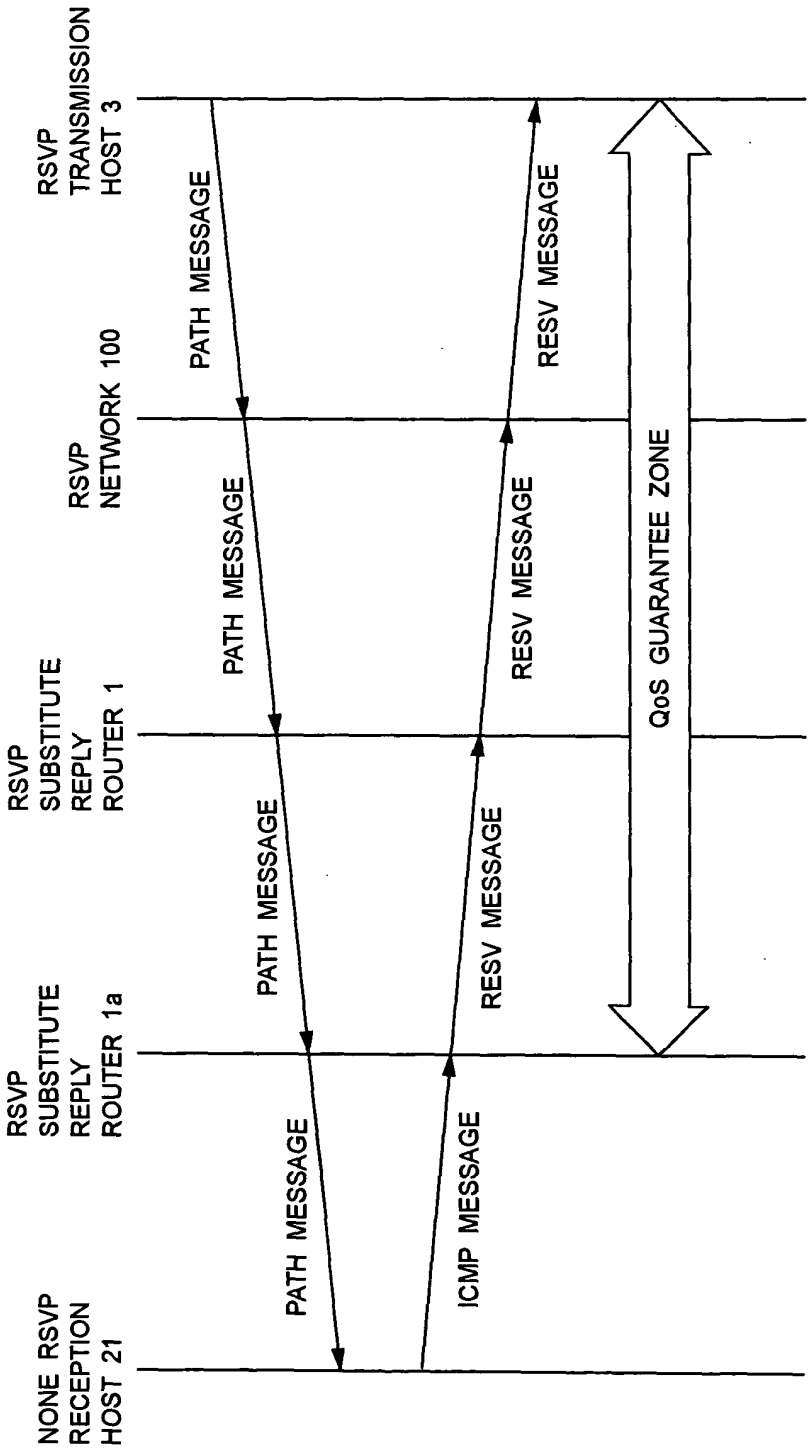

RSVP TRANSMISSION HOST 3
RSVP NETWORK 100
RSVP SUBSTITUTE REPLY ROUTER 1
RSVP SUBSTITUTE REPLY ROUTER 1a
NONE RSVP RECEPTION HOST 21
PATH MESSAGE
PATH MESSAGE
PATH MESSAGE
PATH MESSAGE
RESV MESSAGE
RESV MESSAGE
RESV MESSAGE
ICMP MESSAGE
QoS GUARANTEE ZONE

FIG. 14

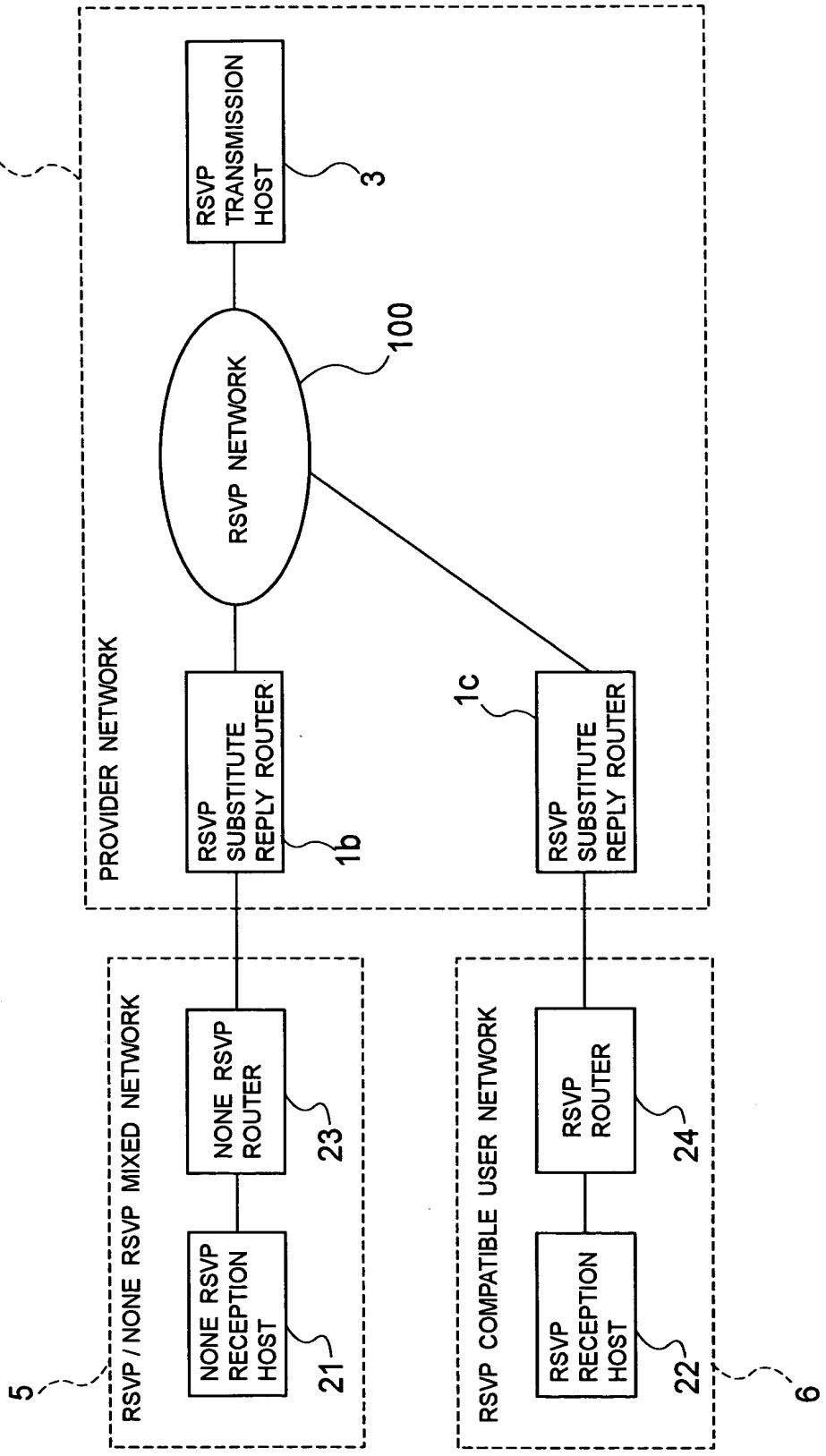
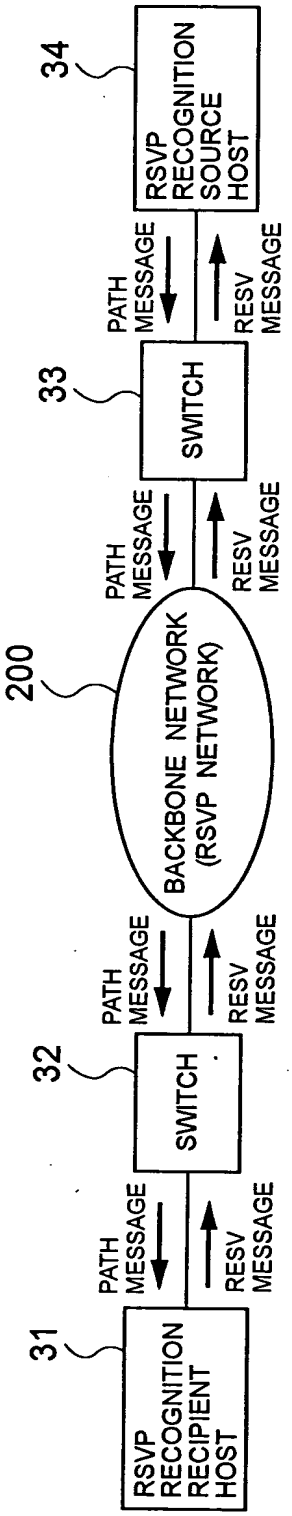

4
PROVIDER NETWORK
RSVP TRANSMISSION HOST
3
RSVP NETWORK
100
RSVP SUBSTITUTE REPLY ROUTER
1b
1c
RSVP SUBSTITUTE REPLY ROUTER
5
RSVP / NONE RSVP MIXED NETWORK
NONE RSVP ROUTER
23
NONE RSVP RECEPTION HOST
21
RSVP COMPATIBLE USER NETWORK
RSVP ROUTER
24
RSVP RECEPTION HOST
22
6

FIG. 15
PRIOR ART



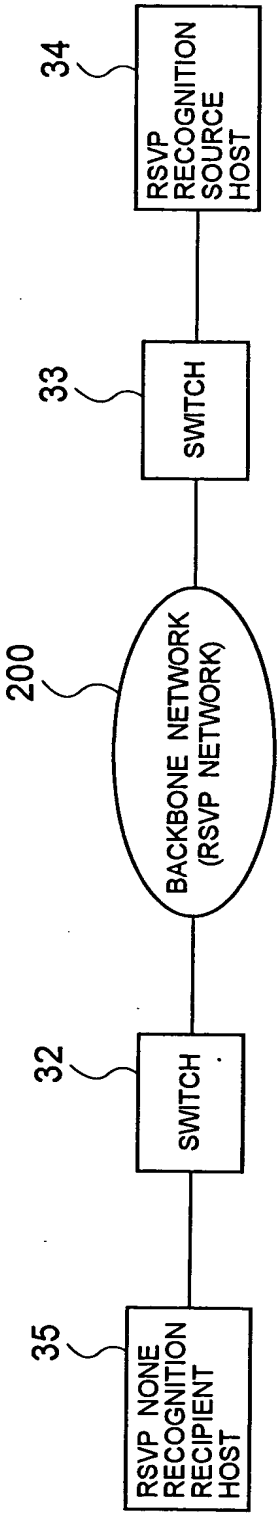


FIG. 16
PRIOR ART